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ABSTRACT

Predicting occurrences of violent behavior in the population of emotionally disturbed criminal offenders was investigated by identifying a pattern of characteristics that significantly discriminates between violent and nonviolent offenders. Subjects were 149 current and former male patients in the Forensics Division of St. Elizabeths Hospital in Washington, D.C. who had committed at least two violent crimes (N=79) or no violent crimes (N=70). Data were obtained from patient files. Univariate analyses showed that factors of education, occupation, age at which first institutionalized, juvenile delinquency, absence of father, and length of time institutionalized before age 18 distinguished significantly between the violent and nonviolent groups. Factor analysis was utilized to reduce the number of predictor variables, and those which emerged were juvenile criminal history, parental absence, socioeconomic status, and family experience. A step-wise discriminant analysis using these reduced factors was then performed on each of two samples formed by randomly splitting the violent group and nonviolent group. All four factors emerged in both discriminant functions. Analyses demonstrated the significance of each function in assigning subjects within the same sample and subjects in the other sample (cross-validation) to the proper classification. (Author)

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Discriminating Between Violent and Nonviolent Disturbed Criminal Offenders

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Empirical research concerning violent behavior in emotionally disturbed criminal offenders offers little insight into the etiology and prediction of this behavior. For example, Cocozza and Steadman (1974) examined a sample of 98 disturbed offenders and predicted that 36 of the sample were likely to commit violent crimes in the future. However, during a follow-up period of several years only 11 of the 36 committed a violent crime. Cocozza and Steadman concluded that this false-positive ratio of nearly two to one was a substantial improvement over other efforts to predict violence.

Attempts to distinguish between violent and nonviolent disturbed offenders suffer on two counts: 1) research with this unique population is relatively rare, and 2) research that is done tends to focus on a descriptive account of univariate differences between violent and nonviolent disturbed offenders. Rubin (1972), in a call for more specific research on this problem, has termed the existing literature "sparse, disorganized, and impressionistic."

The purpose of the present study was to identify a pattern of characteristics that significantly discriminates between violent and nonviolent disturbed offenders. Given the meager available knowledge concerning the population of violent disturbed offenders, no specific hypotheses were proposed beforehand. As in other studies designed to isolate variables related to crime and violence, such as that by West (1969) which examined the onset of juvenile delinquency, the approach taken in this study involved the investigation of the relationship between a wide variety of objective variables and violence in an attempt to determine those variables which identify violent individuals. The results were intended to be a heuristic contribution to the literature rather than a definitive explanation of violent

disturbed criminal behavior. They were considered a first step in isolating variables on which research involving the prediction of violence might focus.

Life history variables which might be influential in discriminating between violent and nonviolent disturbed offenders have been suggested by prior studies of violent nondisturbed offenders and psychiatric patients. The comprehensive, pioneering research by Robins (1966) has indicated that the best predictor of sociopathic personality in adulthood is the degree of juvenile antisocial behavior. Other research has supported the relationship between history of juvenile delinquency and criminal violence in adults (Cocozza and Steadman, 1974; Greenland, 1971). In addition, Robins (1966) has determined that among those who were antisocial as youths, the best predictor of sociopathy is whether or not they were ever placed in a correctional institution.

Similarly, West (1969) has discovered that disordered conduct in childhood is significantly related to later delinquency. Other variables associated with delinquency in the study by West are: being from a large family, having an "unstable" mother, having an "unstable" father, and being separated early in life from mother or father.

Additional research has found aggression to be more prevalent among children born after the oldest child in the family (Hillenbrand, 1971; Palmer, 1960; Schwendimen, Larsen, and Parks, 1970). Hillenbrand (1971) has extended this finding to show that this relationship is especially true among males without fathers for a lengthy period of time. Father absence during childhood has also been related to violent behavior and personality maladjustment in later years among males (Biller, 1970; Hurwitz, 1965) as well as among females (Biller and Weiss, 1970; Climent, Rollins, Ervin, and Plutchik, 1973).

The occurrence of emotional disturbances within the immediate family has been related to juvenile delinquency by Hurwitz (1965), but its relationship to

adult criminal violence is not known (Guze, Wolfgran, McKinney, and Cantwell, 1967).

Low educational achievement and poor occupational history have also been demonstrated to be more common among violent offenders (Cole, Fisher, and Cole, 1968).

This review, while far from exhaustive, suggests that a number of objective life history variables are related to violent behavior in various populations. The variables examined in this study of disturbed criminal offenders were:

1) level of education,
2) occupational status,
3) age at which first institutionalized,
4) years since psychological or psychiatric help was first received,
5) history of juvenile delinquency,
6) length of time father or step-father was absent from the home before age 18,
7) length of time mother or step-mother was absent from the home before age 18,
8) length of time institutionalized before age 18,
9) whether or not any siblings or either of the parents were institutionalized for a psychiatric disturbance,

and 10) order of birth.

Methods

Subjects

Potential subjects for this study were 253 current and former male patients in the Forensics Division of St. Elizabeths Hospital in Washington, D. C. All patients were found not guilty of a crime by reason of insanity between the years 1968 and 1978. The 79 patients who had committed at least two violent crimes were considered "chronically violent", and the 70 who had committed no violent crimes were considered "nonviolent". A violent crime was defined as a felony involving injury or death or an attempt to inflict injury or death upon one or more persons. A total of 104 patients were eliminated from study: seventy-eight had committed only one violent crime and could not be classified as "chronically violent" or "nonviolent", and information on twenty-six former patients was not available. The remaining 149 patients served as subjects for this research. Of these, 126 were black and 23 were white. The average age of the subjects at the time they were found not guilty by reason of insanity was 33.6 years. Nearly all had been residents of the Washington, D. C. metropolitan areawith a substantial majority from within the city.

Procedure

All data were obtained from the patients' files, each of which included a detailed social history, psychiatric reports, nurses' notes on the daily behavior of the patient, information from various agencies which had had contact with the patient (such as other psychiatric hospitals, or one of the branches of the military), and a copy of the patient's criminal record provided by the F. B. I. or the Washington, D. C. police department.

All variables were defined before data collection began. Educational achievement was measured by number of grades of school completed. Occupational status was divided into four categories: 1) employed in a "white collar" profession (teacher,

lawyer, etc.) for a majority of the five years previous to the charge of which found not guilty by reason of insanity or since completion of education, 2) employed for the same time span in a skilled occupation (machinist, carpenter, etc.), 3) employed for the same time span in an unskilled occupation (laborer, store clerk, etc.), and 4) unemployed for a majority of this time span. The number of years since psychological or psychiatric help was first received was determined from the social history. A history of juvenile delinquency was recorded if the patient had been charged with a felony before age 17. The span of parental absence was considered to be the length of time there was no natural father or mother or legal step-father or step-mother residing in the home of the patient before he was 18. The age at which the patient was first institutionalized, the length of time the patient was institutionalized before age 18, and the patient's order of birth were obtained directly from the social history, and the number and types of crimes committed were recorded from the F. B. I. or police record.

Both univariate and multivariate analyses were performed on the data.

Results

Preliminary t-tests determined that low educational level ($p < .02$), poor occupational history ($p < .01$), early age at which first institutionalized ($p < .01$), juvenile delinquency ($p < .001$), absence of father in the home ($p < .02$), and length of time institutionalized before 18 ($p < .01$) were significantly more prevalent in the "violent" group. Each of the other variables except the number of years since psychiatric help was first received approached statistical significance.

The 149 "violent" and "nonviolent" subjects were randomly split into two groups, sample 1 and sample 2, and a step-wise discriminant analysis was performed on each. The variables found to independently discriminate between "violent" and "nonviolent" subjects in the first sample were education, age first institutionalized, delinquency, and absence of mother. Those in the second sample were age first institutionalized, delinquency, absence of father, absence of mother, length of institutionalization before 18, and birth order. The discriminant function from each sample was then applied to the other sample to cross-validate both functions. Chi-squared analyses proved each function to be significant at least to the .005 level in assigning the subjects from both samples to their respective groups.

However, upon reexamination of the data a substantial number of missing values was noted, calling into question the appropriateness of the above discriminant analyses. At that time, it was decided that a re-analysis was necessary using only those data from subjects with no missing values. Sample 1 then consisted of 20 "violent" and 21 "nonviolent" subjects, while sample 2 contained 20 "violent" and 20 "nonviolent" subjects.

T-tests were again performed on these new samples with all of the variables except mother absence and disturbed family member significantly differentiating the "violent" and"nonviolent" subjects. These results are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

Due to the reduction in size of the samples, discriminant analysis directly utilizing all 10 predictor variables was deemed inappropriate. Factor analysis was chosen as the means by which to reduce the number of predictors for the discriminant analyses. The loadings of each standardized predictor on the four factors extracted in this procedure are given in Table 2.

INSERT TABLE 2 ABOUT HERE

Age first institutionalized, juvenile delinquency, and length of time institutionalized before 18 loaded highly on Factor 1, which was named "juvenile criminal history". Factor 2, called "parental absence", was weighted highly on father absence and mother absence. Education and occupation loaded highly on Factor 3, labeled "socioeconomic status". Factor 4, weighted highly on disturbed family member and birth order, was tentatively named "family experience". These factors accounted for 67% of the common variance.

Discriminant analyses were then performed on both samples using these factor scores as "predictors". All four factors emerged in both discriminant functions. Chi-squared analyses demonstrated the significance of each function in assigning subjects within the same sample to the proper classification. These classification results are given in Tables 3 and 4.

INSERT TABLES 3 AND 4 ABOUT HERE

The discriminant function from each sample was then applied to the other sample to cross-validate both functions. Again, each function was significant in assigning the subjects from the other sample to their respective groups. These results are presented in Tables 5 and 6.

INSERT TABLES 5 AND 6 ABOUT HERE

Discussion

Before considering what has been found in this study, it might be beneficial to discuss what these results have not shown. The four factors derived from the ten life history variables have not been demonstrated to predict which patients will be violent after release from the institution. Only current status with regard to number of violent crimes committed was examined. These factors also do not necessarily provide a description of the etiology of violent disturbed criminal behavior. The present study did not determine that all individuals with these characteristics become violent, but that those who are violent tend to have these characteristics. This relates to what Kohlberg, LaCrosse, and Ricks (1972) term the problem of "follow-up" versus "follow-back" research designs. Research concerned with etiology requires a "follow-up" design in which a sample of subjects is randomly chosen among those from the population of interest and the relationship over a period of time between their behavior, in the present case disturbed criminal violence, and particular characteristics and events is noted. A "follow-back" study is one in which the outcome, in this case the presence or absence of criminal violence, has already been determined and characteristics common to those subjects with similar outcomes are investigated. The present research constitutes such a study.

From the results of this "follow-back" design, life history variables have been identified which significantly discriminate between samples of violent and nonviolent individuals who have been found not guilty of a crime by reason of insanity. The factors created by these variables appear to involve juvenile criminal history, parental absence, socioeconomic status, and possibly some aspect of family experience.

As described in the introduction, past research has related characteristics associated with each of these factors to violence in various populations, but all

of these characteristics have not before been related to violence in disturbed offenders. In addition, little previous research has utilized such a pattern of variables to classify disturbed offenders into violent and nonviolent groups.

An obvious question emerging from this research is, are the discriminating factors found here different from those which discriminate between violent and nonviolent nondisturbed offenders? This issue has not been addressed but certainly warrants research.

Another uncertainty lies in the degree to which these results generalize to the population of disturbed offenders. The influence of the differences between the sample examined here and the population is unknown and requires further study.

The findings from this research should provide clues as to what variables would be worthwhile to examine in studies of etiology using a "follow-up" design. Results forthcoming from these studies would be useful in attempting the most important application of the research, that of predicting future violent behavior.

Table 1. T-tests of predictors between Nonviolent and Violent groups.
(n = 81)

Variable	Nonviolent	Violent	t
Education	10.85	9.00	2.73 **
Occupation	2.15	1.57	3.09 **
Age first institutionalized	24.73	17.10	4.10 ***
Years since first rec'd psych. treatment	7.80	12.08	2.39 *
Juvenile delinquency	0.15	0.78	7.21 ***
Father absence	4.15	8.28	2.72 **
Mother absence	2.95	3.15	< 1
Length of time inst'd before age 18	2.15	16.23	3.87 ***
Disturbed family member	0.37	0.46	< 1
Birth order	1.60	1.80	1.97 *

* ($p < .05$) ** ($p < .01$) *** ($p < .001$)

Table 2. Predictor loadings on rotated factors

(n = 81)

Variable	Factor 1 ("Juvenile criminal history")	Factor 2 ("Parental absence")	Factor 3 ("Socioeconomic status")	Factor 4 ("Family experience")	Communality (h^2)
Education	-0.112	-0.039	0.835 **	-0.123	0.727
Occupation	-0.138	-0.187	0.792 **	0.028	0.682
Age first institution'd	-0.784 **	-0.115	-0.067	0.015	0.633
Years since help	0.490	0.279	0.084	0.253	0.389
Juvenile delinquency	0.752 **	0.045	-0.279	0.040	0.646
Father absence	0.244	0.819 **	-0.229	0.147	0.804
Mother absence	-0.079	0.883 **	-0.044	-0.069	0.793
Length inst'd before 18	0.780 **	-0.146	-0.319	0.022	0.732
Disturbance in family	0.298	0.268	0.159	0.681 **	0.650
Birth order	-0.153	-0.198	-0.339	0.739 **	0.723
Sum of squares (eigenval's)	2.238	1.712	1.711	1.119	6.779
Variance summarized (proportion common variance)	.22	.17	.17	.11	.67

Table 3. Function coefficients from sample 1 applied to sample 1.

	Predicted	
Actual	Nonviolent	Violent
Nonviolent	19	2
Violent	5	15

83% of cases correctly classified.

$\chi^2 = 18.11$ ($p < .001$)

Table 4. Function coefficients from sample 2 applied to sample 2.

	Predicted	
Actual	Nonviolent	Violent
Nonviolent	17	3
Violent	3	17

85% of cases correctly classified.

$\chi^2 = 19.60$ ($p < .001$)

Tables 3 and 4. Derivation of discriminant functions.

Table 5. Function coefficients from sample 2 applied to sample 1.

	Predicted	
Actual	Nonviolent	Violent
Nonviolent	17	4
Violent	8	12

69% of cases correctly classified.

$\chi^2 = 7.25$ ($p < .01$)

Table 6. Function coefficients from sample 1 applied to sample 2.

	Predicted	
Actual	Nonviolent	Violent
Nonviolent	17	3
Violent	5	15

78% of cases correctly classified.

$\chi^2 = 14.54$ ($p < .001$)

Tables 5 and 6. Cross-validation of discriminant functions.

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